## REMARKS

By this Amendment claims 20-39 have been amended and new claims 40 and 41 added. Claim 20 has been amended to state that in step (b) the diluted second solution is placed on one side of a nano-filtration membrane and a pressure differential of at least 7 MPa is applied across the membrane. Basis for this amendment can be found at pages 43 and 44 of the specification. In this regard, at page 43, line 30, to page 44, line 5, it is stated how the second solution may be placed on one side of a membrane and a pressure differential applied across the membrane. Page 44, line 9, makes it clear that the membrane may be a nanofiltration membrane, and a disclosure of 7 MPa is found at page 44, line 13. Since page 43, line 30, to page 44, line 5, describes the possibility of any pressure differential being applied, the possibility of the pressure differential being 7MPa or greater is directly and unambiguously disclosed from pages 43 and 44 in combination. The amendments, therefore, do not add matter beyond the scope of the application as originally filed.

Claim 20 has also been amended to recite that a liquid solvent passes across the membrane. Although the word "liquid" is not explicitly used in the specification, it is directly and unambiguously clear from the application as a whole that the solvent passes across the membrane of the direct osmosis step in liquid form. In this connection, there is nothing in the application to suggest that the liquid is first evaporated in an

osmotic distillation process. This amendment, therefore, is a clarifying amendment that does not extend beyond the scope of the specification.

The selective membrane employed in the direct osmosis step has been labeled as the first selective membrane. This is simply a clarifying amendment to improve the intelligibility of the claim. The claim also recites that the second solution contains solute species that are too large to pass through the pores of the first selective membrane and the pores of the nanofiltration membrane. Basis for the amendment can be found at page 22, lines 13 to 16, of the specification.

New claim 40 recites that the solution on either side of the first selective is heated to a temperature of below 80 degrees C. Basis for this step can be found at page 45, line 14, of the specification.

New claim 41 recites that the liquid solvent is extracted from the diluted second solution of step (b) by two or more sequential nanofiltration steps. Basis for this is found at page 12, lines 5 to 7, of the specification.

It is believed that the amendments to claim 20 suffice to place this application in an immediately allowable state.

In the outstanding final Office Action the examiner has rejected claims 20-33 and 36-39 under 35 U.S.C. 103(a) as being unpatentable over WO 97/18166 (Herron et al.) in view of Lefebvre and Mickols, she has rejected claims 34-36 under 35 U.S.C. 103(a) as being unpatentable over WO 97/18166 in view of Lefebvre, Mickols and Herron et al. (USP

5,281,430), and she has rejected claims 20-22, 27, 28 and 34-39 under 35 U.S.C. 103(a) as being unpatentable over Yaeli in view of Mickols and Lefebvre.

The applicants assert that these rejections cannot be applied to the amended claims.

As discussed previously, the problem underlying the invention is to improve the efficiency of a desalination process. The present invention solves this problem by using a nanofiltration membrane to separate solvent from the solution. To ensure that this separation step can be carried out, the solute species in the second solution are specifically selected so that they can be separated by nanofiltration. Furthermore, because of the specific selection of the types of solute species, the present inventors have recognized that the nanofiltration step can be carried out at pressures in excess of 7 MPa. This greatly enhances throughput across the membrane and improves the efficiency of the process. Such pressures are not used in conventional reverse osmosis processes that use conventional reverse osmosis membranes.

The examiner has relied on Herron et al. as her primary reference. As acknowledged by the examiner, this reference does not describe the use of a nanofiltration membrane. Contrary to the examiner's suggestions, however, this is not the only difference between the process of Herron et al. and the claimed invention. As explained in further detail below, a person of ordinary skill in this art when reading Herron et al.

would not consider using a solution containing large solute species to draw solvent from a first solution by direct osmosis.

Although Herron et al. mention the possibility of using larger salts, such as calcium chloride and sodium citrate, this is only in the context of Example 3. This Example was carried out to identify the best salts suitable for forming the draw solution for the direct osmosis step. As can be seen from page 16, lines 24 to 25, WO 97/18166 indicates that sodium chloride is a desirable brine solution because of its solubility and rejection characteristics. This is consistent with page 13, lines 18 to 19, which teach away from the use of larger, multivalent salts. A person of ordinary skill in the art when reading Herron et al., therefore, would be disinclined from using the larger salts covered by applicants' claim 20. A person of ordinary skill in this art when reading Herron et al., therefore, would be disinclined from using large solute species in the second solution to draw water from seawater.

Although larger solute species are described in Lefebvre, it is not apparent why a person of ordinary skill in the art would use such solutes in the process of Herron et al., as this would be contrary to its teachings. As discussed above, Herron et al. explicitly states that "[u]nivalent salts are preferred for the aqueous brine solution" (see page 13, lines 18 to 19). Although larger solutes were tested in Herron et al., "sodium chloride was found to be the "desirable brine solution" when compared to larger species (see Example 3). In the absence of hindsight, therefore, it

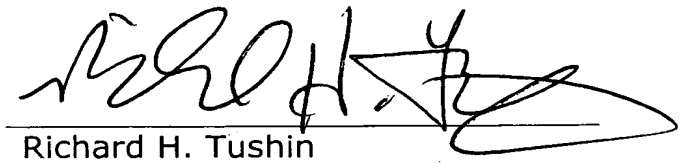
is not apparent why a person of ordinary skill in this art would use the larger solute species described in Lefebvre in Herron et al., as this would go against the teachings of the latter.

Even if a person of ordinary skill in the art were to use larger solute species in the second solution to extract solvent from the first solution by direct osmosis, there is nothing in the prior art that would motivate a person of ordinary skill in the art to use a nanofiltration membrane at the pressures claimed in claim 20. Although Lefebvre mentions solutes, such as magnesium sulphate, there is no recognition that larger pore nanofiltration membranes may be used in the reverse osmosis step. Furthermore, there is no suggestion in Lefebvre that the nano-filtration step may be carried out at the elevated pressures claimed in claim 20. The present inventors were the first to recognize a link between i) the choice of solute, ii) nature of the membrane and iii) operation conditions to improve the efficiency and effectiveness of the overall desalination process. This link is not disclosed or suggested in any of the prior art documents. In fact, Lefebvre teaches away from the pressures of the claimed invention by advocating conventional pressures of 4,130 KPa at column 5, line 51. Similarly, the pressures used in Mickols from 0.90 MPa to 1.7MPa in the Examples. There is nothing to suggest that high pressures should be used.

In view of the above, it is submitted that the references do not suggest the steps of claim 20 to a person of ordinary skill in the art.

The additional government claim fees should be charged to Deposit Account No. 04-2223.

Respectfully submitted,

By: 

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